

FOR ERRATA

AD 406916

THE FOLLOWING PAGES ARE CHANGES

TO BASIC DOCUMENT

ACTIVE PAGE RECORD

SECTION	ORIG REL PAGE NO.	REV SYM	ADDED PAGES						SECTION	ORIG REL PAGE NO.	REV SYM	ADDED PAGES					
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	2		2.1									50	A				
	3											51	A				
	4	D	4.1	D	4.2		4.3					52	D				
	5											53	D				
	6	D										54	D				
	7											55	D				
	8											57	D				
	9											58	D				
	10											59	D				
	11											60	D				
	12											61	D				
	13											62	D				
	14											63	D				
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	16											65	D				
	17											66	D				
	18											67	D				
	19											68	D				
	20											69	D				
	21											70	D				
	22											71	D				
	23											72	D				
	24											73	D				
	25											74	D				
	26											75	D				
	27											76	D				
	28											77	D				
	29											78	D				
	30											79	D				
	31											80	D				
	32											81	D				
	33		34	B								82	D				
			35	B								83	D				
			36	B								84	D				
			37	B								85	D				
			38	B								86	D				
			39	B								87	D				
			40	B								88	D				
			41	B								89	D				
			42	B								90	D				
			43	A								91	D				
			44	A								92	D				
			45	A								93	D				
			46	A								94	D				
			47	A								95	D				
			48	A								96	D				

US 4801 0850 ORIG. 8/62

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REV SYM 2

BOEING

NO. D2-13943-2

SECT.

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ACTIVE PAGE RECORD

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			108	D							156	F			
			109	D							157	F			
			110	D							158	F			
			111	D							159	F			
			112	D							160	F			
			113	E							161	F			
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			115	E							163	F			
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			121	E							169	F			
			122	F							170	F			
			123	F							171	F			
			124	F							172	F			
			125	F							173	F			
			126	F							174	F			
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			130	F							178	F			
			131	D							179	F			
			132	D							180	F			
			133	D							181	F			
			134	D							182	F			
			135	D							183	F			
			136	D							184	F			
			137	D							185	F			
			138	D							186	F			
			139	D							187	F			
			140	E							188	F			
			141	E							189	F			
			142	E							190	F			
			143	E							191	F			
			144	E											

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REV SYM F

~~SECRET~~ NO. D2-13943-2
SECT. PAGE 2.1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED
A	<p>Revised Page 4</p> <p>Added Pages 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51</p> <p>Added Sections 4.0 and 5.0 to the document.</p>	6-17-63	D. Brenden <i>D. Brenden</i>
B	<p>Revised Pages 34, 35, 36, 37, 38, 39, 40, 41, 42</p>	7-17-63	D. Brenden <i>D. Brenden</i>
C	<p>Revised Pages 2, 3, 4</p> <p>Added Pages 4.1, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76,</p>	8-16-63	D. Brenden <i>D. Brenden</i>
D	<p>Revised Pages 2, 3, 4, 4.1, 6, 52, 53, 54, 55, 61, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76.</p> <p>Added Pages 2.1, 4.2, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139.</p>	10-16-63	D. Brenden <i>D. Brenden</i>
E	<p>Revised Pages 2, 2.1, 3, 4.2, 114, 115, 116, 117, 118, 119, 120, 121, 113</p> <p>Added Pages 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155.</p>	11-18-63	D. Brenden <i>D. Brenden</i>
F	<p>Revised Pages 2, 2.1, 3, 4.2, 122, 123, 124, 125, 126, 127, 128, 129, 130</p> <p>Added Pages 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 4.3, 183, 184, 185, 186, 187, 188, 189, 190, 191.</p>	12-18-63	D. Brenden <i>D. Brenden</i>

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CTLI SECTION, S/N 0000045

13.1

This section of the document describes the data changes created by converting a production line Minuteman missile into a CTLI missile. The mass data reported herein reflect the predicted net changes to be applied to the total missile mass properties when this CTLI section and the related downstage components are installed on a missile. A supplemental report (see reference 1.1.6) will be issued at Vandenberg Air Force Base when this CTLI section is actually used on a missile. This supplemental report will reflect the actual data gathered on base during the installation and will thus supersede parts of this report. However, past experience has shown that the changes between these two reports will be slight.

The data on the following pages consist of weight and balance summaries check lists, and ECP's lists applicable to this installation. Page 123 summarizes the complete installation mass properties and consists of data from page 124 (average mass properties of downstage components), page 125 (predicted sealant changes), and page 129 (actual weight of CTLI section S/N 0000045). In addition, page 126 presents summary check lists by production section as backup data for page 124. Page 130 lists the engineering change proposals incorporated on the components used for this installation.

All data reported in this section of the document reflect the use of a linear shaped charge destruct system on the first stage engine per ECP 116.

Aerojet weights used in this report reflect the data transmitted to Boeing by Aerojet document 0162-01DP-NMPD-1, "Nominal Mass Properties and Dispersions for Minuteman CTLI/AODE" dated January 28, 1963.

Average values have been used for all Boeing items other than the CTLI section which is an actual weight.

The following drawings are incorporated in the above section:

- 10-20942, Battery Instl., Rev. H 6-10-63.
- 21-52900, Missile Instl., Rev. K 9-19-63.
- 25-25406, EMS 5-62 Instl., DCN J 9-13-63.
- 25-26878, Cable Assy., DCN J 9-3-63.
- 25-37060, Conduit Assy., DCN B 9-10-63, ADCN S-20 10-22-63.
- 25-37236, Instl. Kit, DCN C 6-28-63.
- 25-37237, Conduit Supt. Set, DCN A 5-10-63.
- 25-37501, 39 Sect. Instl., DCN C 11-5-63.
- 29-22327, Timer Instl., DCN D 6-24-63, ADCN S-6 9-5-63.

13.2 WEIGHT & BALANCE SUMMARY TOTAL CTLI KIT INSTALLATION CTLI WAFER S/N 0000045						REPORT NO. _____ DATE _____				
[]	[]	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² X 10 ⁻³	
						LONG.*	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			147.81	54.8	99.7	100.1	.004	.002
5			Silo							
6			Aero							
7	42	O&C Section			5.56	67.9	111.7	114.7	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.65	85.9	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3 (Fwd)			- 1.32	56.3	109.8	117.7	0	0
15			Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	- 1.32		56.3	109.8	117.7		
22	45	Interstage 2-3 (Aft)			18.64	64.7	111.8	120.2		
23			Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2 (Fwd)			- .98	58.2	113.6	123.8	0	0
30			Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2 (Aft)			25.26	74.0	114.8	125.2	0	.002
38			Silo							
39			Aero							
40	48	1st Stage Engine			26.70	117.2	117.7	130.1	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Scirt			7.78	74.5	118.1	129.6	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			272.10					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Boeing Section Stations (See Missile Station Diagram)

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13.2 WEIGHT & BALANCE SUMMARY CTLI (AVERAGE WEIGHT COMPONENTS)						REPORT NO. _____				
						DATE _____				
LINE NO.	REV.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² X10 ⁻³	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			3.42	56.9	108.4	112.4	0	0
5			Silo							
6			Aero							
7	42	O&C Section			5.16	68.1	111.8	114.8	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.45	86.0	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3 (Fwd)			- 1.52	55.9	109.9	117.6	0	0
15			Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned Portion	Aero							
20			Base							
21			Jett	- 1.52		55.9	109.9	117.6		
22	45	Interstage 2-3 (Aft)			18.44	64.8	111.8	120.2	0	.001
23			Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2 (Fwd)			- .98	58.2	113.6	123.8	0	0
30			Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned Portion	Aero							
35			Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2 (Aft)			24.76	73.6	115.1	125.6	0	.002
38			Silo							
39			Aero							
40	48	1st Stage Engine			25.90	115.8	117.7	130.2	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Scirt			7.58	73.8	118.1	129.5	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			125.21					
49			Silo							
50			Aero							
51			Base							
52			Jett							

13.2 BMS 5-62 CHANGES INSTALLED AT VANDESBURG AIR FORCE BASE*						REPORT NO. _____				
						DATE _____				
LINE	SUB.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² X10 ⁻³	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			.2	54.5	111.5	111.5		
5			Silo							
6			Aero							
7	42	O&C Section			.4	65.4	110.5	113.5		
8			Silo							
9			Aero							
10	44	3rd Stage Engine			.2	80.9	109.3	116.2		
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			.2	53.6	110.8	116.7		
15		(Fwd)	Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	.2		53.6	110.8	116.7		
22	45	Interstage 2-3			.2	53.6	110.8	116.7		
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			0	-	-	-		
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			0	-	-	-		
30		(Fwd)	Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett							
37	47	Interstage 1-2			.5	94.7	102.0	103.4		
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			.8	161.3	116.2	128.0		
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			.2	101.3	119.2	133.9		
45			Silo							
46			Aero							
47			Base							
48		MISSILE			2.7					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Reference D2-13954-534

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REV. 524. 1

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PAGE 125

13.4.1 ACTUAL WEIGHT RECORD - CTLI SECTION			
U/O MISSILE 0000045	DRAWING NO. 25-37501-9	CHECK LIST NO. 39	REPORT NO. WBS-1128-045
MISSILE MODEL WBS-133A	DCN	REPORTED BY CB-RR	PAGE NO.
CONFIGURATION	ADCN	CHECKED BY RW	DATE 11-18-61

LONGITUDINAL REFERENCE DATUM

LATERAL REFERENCE DATUM

VERTICAL REFERENCE DATUM

WEIGHING DATA				DIMENSIONAL DATA			
REACTION	GR. WT.	TARE	CORR.	NET WT.	REACTION	INCHES	DIM. INCHES
RF	56.30	22.60		33.70	AF	42.007	EA 84.510
RH	53.90	29.80		24.10	AH	42.023	EB 84.505
RE	104.80	64.80		40.00	BE	62.996	FC 115.490
BG	101.20	59.35		41.85	BG	62.999	FD 115.495
TOTAL	316.20	176.55		139.65	C	50.000	H 100.000
					D	60.000	M 100.000

LONGITUDINAL C.G.				LATERAL C.G.				VERTICAL C.G.			
REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT
RF	33.70	42.007		RA	43.80	84.510		RB	30.40	77.478	
RH	24.10	42.023		RB	30.40	84.505		RD	27.80	77.481	
RE	40.00	62.996		RC	37.65	115.490		RA	43.80	115.500	
BG	41.85	62.999		RD	27.80	115.495		RC	37.65	115.500	
AS WGD	139.65	54.31	7,584.8	AS WGD	139.65	99.03	13,829.4	AS WGD	139.65	99.65	13,916.8

(RR) = Rear Reaction

SERIAL NUMBER: 0000045

CHECK LIST NO. 39		13.4.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)									
DATE		MODEL WS-133A		FINAL ASSEMBLY DRAWING NO. 25-35701-9		<table border="1"> <tr> <td>Mo</td> <td>11</td> </tr> <tr> <td>Day</td> <td>18</td> </tr> <tr> <td>Yr</td> <td>63</td> </tr> </table>		Mo	11	Day	18	Yr	63
Mo	11												
Day	18												
Yr	63												
SECTION 39		MISSILE NO.		COMPONENT									
MISSILE COMPONENT		COMPONENT PART NO.		<table border="1"> <tr> <td>AS WEIGHED</td> <td>AS RECEIVED</td> <td>SHIPMENT</td> <td>REMOTE SITE</td> <td>REMOTE SITE</td> <td>LAUNCH</td> </tr> </table>				AS WEIGHED	AS RECEIVED	SHIPMENT	REMOTE SITE	REMOTE SITE	LAUNCH
AS WEIGHED	AS RECEIVED	SHIPMENT	REMOTE SITE	REMOTE SITE	LAUNCH								
ITEM NUMBER	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	<table border="1"> <tr> <td>BASIC WEIGHT</td> <td>AS WEIGHED</td> </tr> </table>	BASIC WEIGHT	AS WEIGHED				
BASIC WEIGHT	AS WEIGHED												
39	Instrumentation Group, Trainer-Test	25-37501-9											
39a	GLI Structure Assembly	25-25403-11											
	Support Structure	25-29094-45											
	Primary Structure	25-29093-15											
	Insulation & External Markings	25-29095-3											
	Antenna & Spacer	25-29096-3											
	Plate - Identification	21-51600-329											
39b	Cable & Equipment Installation	25-25404-15											
	Battery, Squib	10-20942-4											
	Battery, Squib	10-20942-2											
	Cable Set SE-35B	55018-106											
	Cable	AM 37192-315											
	Cable	AM 37194-315											
	Cable	AM 37196-315											

2-5580-0-21

REV. 504 1

WEIGHT AND BALANCE CHANGE RECORD											
13.4.3				WEIGHT AND BALANCE							
ASSOCIATE CONTRACTOR		CONTRACT NO.		REPORT NO.		DATE		PREPARED		APPROVED	
COMPONENT		LOT NO.		25-37501-9		11-12-63		CB/AM		GO	
MODEL NO.		DRAWING NO.		25-37501-9		11-12-63		CB/AM		GO	
SERIAL NO.		U.O. MISSILE		0000045		11-12-63		CB/AM		GO	
EQUIPMENT CHANGE RECORD				WEIGHT AND BALANCE							
LINE	PART NO.	DESCRIPTION OF EQUIPMENT	WEIGHT	X AXIS		Y AXIS		Z AXIS			
				ARM	MOMENT	ARM	MOMENT	ARM	MOMENT		
1	25-37501-9	Instr. Group Trainer (As Weighed)	139.65	54.31	7,584.8	99.03	13,829.4	99.65	13,916.8		
2											
3											
4											
5		ADD:									
6	AN37104-315	Cable-Autonetics	3.20	74.2		115.5		102.8			
7	AN37106-315	Cable-Autonetics	1.34	50.4		106.9		111.4			
8											
9											
10											
11	25-37501-9	Instr. Group Trainer (Complete)	144.19	54.72	7,889.8	99.47	14,342.2	99.83	14,395.0		
12											
13											
14											
15											
16											
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32											

2-5550-0-11 R1

REV. 501

13.5

**ENGINEERING CHANGE PROPOSAL (ECP) INCORPORATION
APPLICABLE TO CTLI SECTION S/N 0000045 AND INSTALLATION KIT**

The following ECP's have not been incorporated into "Model Specification,
Trainer-Test Group, Guided Missile, (S-133-1006-0-1)".

ECP NO. (WS-133A-BO-)	ECP TITLE	STAGE	WEIGHT CHANGE	WEIGHT CHANGE INCORPORATED IN THIS REPORT
540	Potting & Bonding Deletions for Vandenberg Air Force Base Missiles	All	-	No*
606	Revision to CTLI Umbilical bracket- Section 49	1	Negl.	Yes
620	Addition of Static Dissipators on 47 Section & Section 49	1	Negl.	Yes
635	PCM R/F Section Digital Data Programmer	3	Negl.	Yes
639	Prevent Interference of Linear Shape Charge with Cable Strap	3	Negl.	Yes
657	Revision of Ordnance Supports in Interstage 2-3	2	Negl.	Yes
660	Wing III Q&C Section & Raceway Revisions	3	Negl.	Yes

Mass properties of other applicable ECP's have been
incorporated

* ECP 540 transfers the responsibility for sealing the raceway covers from
Plant 77 to Vandenberg. However, the weight is still considered part of
the operational missile and is not included in this report.

CTLI SECTION, S/N 0000048

16.1 This section of the document describes the data changes created by converting a production line Minuteman missile into a CTLI missile. The mass data reported herein reflect the predicted net changes to be applied to the total missile mass properties when this CTLI section and the related downstage components are installed on a missile. A supplemental report (see reference 1.1.6) will be issued at Vandenberg Air Force Base when this CTLI section is actually used on a missile. This supplemental report will reflect the actual data gathered on base during the installation and will thus supersede parts of this report. However, past experience has shown that the changes between these two reports will be slight.

The data on the following pages consists of weight and balance summaries check lists, and ECP's lists applicable to this installation. Page 157 summarizes the complete installation mass properties and consists of data from page 158 (average mass properties of downstage components), page 159 (predicted sealant changes), and page 163 (actual weight of CTLI section S/N 0000048). In addition, page 160 presents summary check lists by production section as backup data for page 158. Page 164 lists the engineering change proposals incorporated on the components used for this installation.

All data reported in this section of the document reflect the use of a linear shaped charge destruct system on the first stage engine per ECP 116.

Aerojet weights used in this report reflect the data transmitted to Boeing by Aerojet document 0162-01DR-NMPD-1, "Nominal Mass Properties and Dispersions for Minuteman CTLI/AODS" dated January 28, 1963.

Average values have been used for all Boeing items other than the CTLI section which is an actual weight.

The following drawings are incorporated in the above section:

10-20942, Battery Instl., Rev. H 6-10-63.
21-52900, Missile Instl., Rev. K 9-19-63.
25-25406, BMS 5-62 Instl., DCN J 9-13-63.
25-26878, Cable Assy., DCN J 9-3-63.
25-37060, Conduit Assy., DCN B 9-10-63, ADCN S-20 10-22-63.
25-37236, Instl. Kit, DCN C 6-28-63.
25-37237, Conduit Supt. Set, DCN A 5-10-63.
25-37501, 39 Sect. Instl., DCN C 11-5-63.
29-22327, Timer Instl., DCN D 6-24-63, ADCN S-6 9-5-63.

16.2 WEIGHT & BALANCE SUMMARY TOTAL CTLI KIT INSTALLATION CTLI WAFER S/N 0000048						REPORT NO. _____ DATE _____					
LINE	33	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10-3		
						LONG.*	LAT.	VERT.	ROLL	PITCH	
1	41	RV Spacer									
2			Silo								
3			Aero								
4	39	CTLI Section			147.24	54.7	99.7	100.1	.004	.002	
5			Silo								
6			Aero								
7	42	Q&C Section			5.56	67.9	111.7	114.7	0	0	
8			Silo								
9			Aero								
10	44	3rd Stage Engine			16.65	85.9	108.5	117.0	0	.002	
11			Silo								
12			Aero								
13			Base								
14	45	Interstage 2-3 (Fwd)			- 1.32	56.3	109.8	117.7	0	0	
15			Silo								
16			Aero								
17			Base								
18			Silo								
19		Jettisoned Portion	Aero								
20			Base								
21			Jett	- 1.32		56.3	109.8	117.7			
22	45	Interstage 2-3 (Aft)			18.64	64.7	111.8	120.2	0	.001	
23			Silo								
24			Aero								
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009	
26			Silo								
27			Aero								
28			Base								
29	47	Interstage 1-2 (Fwd)			- .98	58.2	113.6	123.8	0	0	
30			Silo								
31			Aero								
32			Base								
33			Silo								
34		Jettisoned Portion	Aero								
35			Base								
36			Jett	- .98		58.2	113.6	123.8			
37	47	Interstage 1-2 (Aft)			25.26	74.0	114.8	125.2	0	.002	
38			Silo								
39			Aero								
40	48	1st Stage Engine			26.70	117.2	117.7	130.1	0	.023	
41			Silo								
42			Aero								
43			Base								
44	49	Skirt			7.78	74.5	118.1	129.6	0	0	
45			Silo								
46			Aero								
47			Base								
48		MISSILE			271.53						
49			Silo								
50			Aero								
51			Base								
52			Jett								

* Boozing Section Stations (See Missile Station Diagram)

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16.2 WEIGHT & BALANCE SUMMARY CTLI (AVERAGE WEIGHT COMPONENTS)						REPORT NO. _____ DATE _____				
LINE	REV.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10 ⁻³	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			3.42	56.9	108.4	112.4	0	0
5			Silo							
6			Aero							
7	42	G&C Section			5.16	68.1	111.8	114.8	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.45	86.0	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3 (Fwd)			- 1.52	55.9	109.9	117.6	0	0
15			Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	- 1.52		55.9	109.9	117.6		
22	45	Interstage 2-3 (Aft)			18.44	64.8	114.8	120.2	0	.001
23			Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2 (Fwd)			- .98	58.2	113.6	123.8	0	0
30			Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2 (Aft)			24.76	73.6	115.1	125.6	0	.002
38			Silo							
39			Aero							
40	48	1st Stage Engine			25.90	115.8	117.7	130.2	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			7.58	73.8	118.1	129.5	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			125.21					
49			Silo							
50			Aero							
51			Base							
52			Jett							

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16.2 BMS 5-62 CHANGES INSTALLED AT VANDENBERG AIR FORCE BASE						REPORT NO. _____				
						DATE _____				
NO.	REV.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10 ⁻³	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			.2	54.5	111.5	111.5		
5			Silo							
6			Aero							
7	42	G&C Section			.4	65.4	110.5	113.5		
8			Silo							
9			Aero							
10	44	3rd Stage Engine			.2	80.9	109.3	116.2		
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			.2	53.6	110.8	116.7		
15		(Fwd)	Silo							
16			Aero							
17			Base							
18		Jettisoned Portion	Silo							
19			Aero							
20			Base							
21			Jett	.2		53.6	110.8	116.7		
22	45	Interstage 2-3			.2	53.6	110.8	116.7		
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			0	-	-	-		
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			0	-	-	-		
30		(Fwd)	Silo							
31			Aero							
32			Base							
33		Jettisoned Portion	Silo							
34			Aero							
35			Base							
36			Jett							
37	47	Interstage 1-2			.5	94.7	102.0	103.4		
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			.8	161.3	116.2	128.0		
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			.2	101.3	119.2	133.9		
45			Silo							
46			Aero							
47			Base							
48		MISSILE			2.7					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Reference DR-1394-534

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CHECK LIST NO.		16.3 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)			
DATE		MODEL	FINAL ASSEMBLY DRAWING NO.	Mo	Day	Yr	
ITEM NUMBER	SECTION 39 THRU 49		MISSILE NO.	COMPONENT			
	MISSILE COMPONENT		COMPONENT PART NO.				
	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	BASIC WEIGHT
							AS WEIGHED
							REMOTE SITE
							SHIPMENT
							AS RECEIVED
							REMOTE SITE
							AS WEIGHED
							REMOTE SITE
							LAUNCH

PRIMARY CHECK LISTS FOR SECTIONS 39 THROUGH 49 ARE IDENTICAL TO THOSE

FOUND ON PAGES 144 THROUGH 151.

16.1.1				ACTUAL WEIGHT RECORD - CTLI SECTION			
U/O MISSILE 0000048		DRAWING NO. 25-37501-9		CHECK LIST NO. 39		REPORT NO. WTS-1129-048	
MISSILE MODEL W-133A		DCN		REPORTED BY CR/AM		PAGE NO.	
CONFIGURATION		ADCN		CHECKED BY		DATE 11-18-63	

LONGITUDINAL REFERENCE DATUM

LATERAL REFERENCE DATUM

VERTICAL REFERENCE DATUM

WEIGHING DATA				DIMENSIONAL DATA											
REACTION	GR. WT.	TARE	CORR.	NET WT.	REACTION	GR. WT.	TARE	CORR.	NET WT.	REACTION	GR. WT.	TARE	CORR.	NET WT.	
RF	59.55	30.70		28.85	RC	58.05	26.80		31.25	AF	42.007	EA	84.510	GB	77.478
RH	50.35	21.90		28.45	RD	95.75	61.90		33.85	AH	42.023	EB	84.505	GD	77.480
RE	101.35	56.80		44.55	RA	91.55	41.75		49.80	BE	62.998	FC	115.490	JA	115.500
RG	104.40	67.20		37.20	RB	70.30	46.15		24.15	EG	62.999	FD	115.495	JC	115.500
TOTAL	315.65	176.60		139.05	TOTAL	315.65	176.60		139.05	C	50.000	H	100.000	M	100.000
										D	60.000				

LONGITUDINAL C.G.				LATERAL C.G.				VERTICAL C.G.			
REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT
RF	28.85	42.007		RA	49.80	84.510		RB	24.15	77.478	
RH	28.45	42.023		RB	24.15	84.505		RD	33.85	77.480	
RE	44.55	62.998		RC	31.25	115.490		RA	49.80	115.500	
RG	37.20	62.999		RD	33.85	115.495		RC	31.25	115.500	
AS WGD	139.05	54.35	7,557.5	AS WGD	139.05	99.01	13,768.0	AS WGD	139.05	99.64	13,855.1

(RB) = Rear Reaction

SERIAL NUMBER: 0000048

CHECK LIST NO. 39		16.4.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)										
DATE		MODEL	WS-133A	FINAL ASSEMBLY DRAWING NO.	25-35701-9	Mo	Day	Yr						
SECTION 39		MISSILE NO.		COMPONENT										
MISSILE COMPONENT		COMPONENT PART NO.		MISSILE										
ITEM NUMBER	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	BASIC WEIGHT	AS WEIGHED	REMOTE SITE SHIPMENT	AS RECEIVED	REMOTE SITE	AS WEIGHED	REMOTE SITE	LAUNCH
39	Instrumentation Group, Trainer-Test	25-37501-9												
39a	ONJ Structure Assembly	25-25403-11												
	Support Structure	25-29094-45												
	Primary Structure	25-29093-15												
	Insulation & External Markings	25-29095-3												
	Antenna & Bracket	25-29096-93												
	Plate - Identification	21-51600-329												
39b	Cable & Equipment Installation	25-25404-15												
	Battery, Squib	10-20942-4												
	Battery, Squib	10-20942-2												
	Cable Set SE-35B	55018-106												
	Cable	AM 37192-315												
	Cable	AM 37194-315												
	Cable	AM 37196-315												

11-6580-0-21

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WEIGHT AND BALANCE CHANGE RECORD											
16.4.3		WEIGHT AND BALANCE CHANGE RECORD									
ASSOCIATE CONTRACTOR		CONTRACT NO.		REPORT NO.		DATE		PREPARED		APPROVED	
COMPONENT		LOT NO.		Y AXIS		Z AXIS		ARM		MOMENT	
MODEL NO.		DRAWING NO.		ARM		MOMENT		ARM		MOMENT	
SERIAL NO.		U.O. MISSILE		ARM		MOMENT		ARM		MOMENT	
25-37501-9		25-37501-9		25-37501-9		25-37501-9		25-37501-9		25-37501-9	
0000048		0000048		0000048		0000048		0000048		0000048	
1		2		3		4		5		6	
2		3		4		5		6		7	
3		4		5		6		7		8	
4		5		6		7		8		9	
5		6		7		8		9		10	
6		7		8		9		10		11	
7		8		9		10		11		12	
8		9		10		11		12		13	
9		10		11		12		13		14	
10		11		12		13		14		15	
11		12		13		14		15		16	
12		13		14		15		16		17	
13		14		15		16		17		18	
14		15		16		17		18		19	
15		16		17		18		19		20	
16		17		18		19		20		21	
17		18		19		20		21		22	
18		19		20		21		22		23	
19		20		21		22		23		24	
20		21		22		23		24		25	
21		22		23		24		25		26	
22		23		24		25		26		27	
23		24		25		26		27		28	
24		25		26		27		28		29	
25		26		27		28		29		30	
26		27		28		29		30		31	
27		28		29		30		31		32	
28		29		30		31		32		33	
29		30		31		32		33		34	
30		31		32		33		34		35	
31		32		33		34		35		36	
32		33		34		35		36		37	
33		34		35		36		37		38	
34		35		36		37		38		39	
35		36		37		38		39		40	
36		37		38		39		40		41	
37		38		39		40		41		42	
38		39		40		41		42		43	
39		40		41		42		43		44	
40		41		42		43		44		45	
41		42		43		44		45		46	
42		43		44		45		46		47	
43		44		45		46		47		48	
44		45		46		47		48		49	
45		46		47		48		49		50	
46		47		48		49		50		51	
47		48		49		50		51		52	
48		49		50		51		52		53	
49		50		51		52		53		54	
50		51		52		53		54		55	
51		52		53		54		55		56	
52		53		54		55		56		57	
53		54		55		56		57		58	
54		55		56		57		58		59	
55		56		57		58		59		60	
56		57		58		59		60		61	
57		58		59		60		61		62	
58		59		60		61		62		63	
59		60		61		62		63		64	
60		61		62		63		64		65	
61		62		63		64		65		66	
62		63		64		65		66		67	
63		64		65		66		67		68	
64		65		66		67		68		69	
65		66		67		68		69		70	
66		67		68		69		70		71	
67		68		69		70		71		72	
68		69		70		71		72		73	
69		70		71		72		73		74	
70		71		72		73		74		75	
71		72		73		74		75		76	
72		73		74		75		76		77	
73		74		75		76		77		78	
74		75		76		77		78		79	
75		76		77		78		79		80	
76		77		78		79		80		81	
77		78		79		80		81		82	
78		79		80		81		82		83	
79		80		81		82		83		84	
80		81		82		83		84		85	
81		82		83		84		85		86	
82		83		84		85		86		87	
83		84		85		86		87		88	
84		85		86		87		88		89	
85		86		87		88		89		90	
86		87		88		89		90		91	
87		88		89		90		91		92	
88		89		90		91		92		93	
89		90		91		92		93		94	
90		91		92		93		94		95	
91		92		93		94		95		96	
92		93		94		95		96		97	
93		94		95		96		97		98	
94		95		96		97		98		99	
95		96		97		98		99		100	
96		97		98		99		100		101	
97		98		99		100		101		102	
98		99		100		101		102		103	
99		100		101		102		103		104	
100		101		102		103		104		105	
101		102		103		104		105		106	
102		103		104		105		106		107	
103		104		105		106		107		108	
104		105		106		107		108		109	
105		106		107		108		109		110	
106		107		108		109		110		111	
107		108		109		110		111		112	
108		109		110		111		112		113	
109		110		111		112		113		114	
110		111		112		113		114		115	
111		112		113		114		115		116	
112		113		114		115		116		117	
113		114		115		116		117		118	
114		115		116		117		118		119	
115		116		117		118		119		120	
116		117		118		119		120		121	
117		118		119		120		121		122	
118		119		120		121		122		123	
119		120		121		122		123		124	
120		121		122		123		124		125	
121		122		123		124		125		126	
122		123		124		125		126		127	
123		124		125		126		127		128	
124		125		126		127		128		129	
125		126		127		128		129		130	
126		127		128		129		130		131	
127		128		129		130		131		132	
128		129		130		131		132		133	
129		130		131		132		133		134	
130		131		132		133		134		135	
131		132		133		134		135		136	
132		133		134		135		136		137	
133		134		135		136		137		138	
134		135		136		137		138		139	
135		136		137		138		139		140	
136		137		138		139		140		141	
137		138		139		140		141		142	
138		139		140		141		142		143	
139		140		141		142		143		144	
140		141		142		143		144		145	
141		142		143		144		145		146	
142		143		144		145		146		147	
143		144		145		146		147		148	
144		145		146		147		148		149	
145		146		147		148		149		150	
146		147		148		149		150		151	
147		148		149		150		151		152	
148		149		150		151		152		153	
149		150		151		152		153		154	
150		151		152		153		154		155	
151		152		153		154		155		156	
152		153		154		155		156		157	
153		154		155		156		157		158	
154		155		156		157		158		159	
155		156		157		158		159		160	
156		157		158							

17.2 WEIGHT & BALANCE SUMMARY TOTAL CTLI KIT INSTALLATION CTLI WAFER S/N 0000049						REPORT NO. _____ DATE _____				
LINE	S	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10 ⁻³	
						LONG. °	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			146.92	54.8	99.7	100.1	.004	.002
5			Silo							
6			Aero							
7	42	O&C Section			5.56	67.9	111.7	114.7	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.65	85.9	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			- 1.32	56.3	109.8	117.7	0	0
15		(Fwd)	Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned Portion	Aero							
20			Base							
21			Jett	- 1.32		56.3	109.8	117.7		
22	45	Interstage 2-3			18.64	64.7	111.8	120.2	0	.001
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			- .98	58.2	113.6	123.8	0	0
30		(Fwd)	Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned Portion	Aero							
35			Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2			25.26	74.0	114.8	125.2	0	.002
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			26.70	117.2	117.7	130.1	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			7.78	74.5	118.1	129.6	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			271.21					
49			Silo							
50			Aero							
51			Base							
52			Jett							

2-5590-0-58 * Boring Section Stations (See Missile Station Diagram)

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17.2 WEIGHT & BALANCE SUMMARY CTLI (AVERAGE WEIGHT COMPONENTS)						REPORT NO. _____ DATE _____				
LINE	SI	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x 10 ⁻³	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			3.42	56.9	108.4	112.4	0	0
5			Silo							
6			Aero							
7	42	G&C Section			5.16	68.1	111.8	114.8	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.45	86.0	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3 (Fwd)		- 1.52		55.9	109.9	117.6	0	0
15			Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	- 1.52		55.9	109.9	117.6		
22	45	Interstage 2-3 (Aft)			18.44	64.8	111.8	120.2	0	.001
23			Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2 (Fwd)		- .98		58.2	113.6	123.8	0	0
30			Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2 (Aft)			24.76	73.6	115.1	125.6	0	.002
38			Silo							
39			Aero							
40	48	1st Stage Engine			25.90	115.8	117.7	130.2	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			7.58	73.8	118.1	129.5	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			125.21					
49			Silo							
50			Aero							
51			Base							
52			Jett							

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17.2 BMS 5-62 CHANGES INSTALLED AT VANDENBERG AIR FORCE BASE*						REPORT NO. _____				
						DATE _____				
LINE	35:	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x 10 ⁻³	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			.2	54.5	111.5	111.5		
5			Silo							
6			Aero							
7	42	G&C Section			.4	65.4	110.5	113.5		
8			Silo							
9			Aero							
10	44	3rd Stage Engine			.2	80.9	109.3	116.2		
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			.2	53.6	110.8	116.7		
15		(Fwd)	Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	.2		53.6	110.8	116.7		
22	45	Interstage 2-3			.2	53.6	110.8	116.7		
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			0	-	-	-		
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			0	-	-	-		
30		(Fwd)	Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett							
37	47	Interstage 1-2			.5	94.7	102.0	103.4		
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			.8	161.3	116.2	128.0		
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			.2	101.3	119.2	133.9		
45			Silo							
46			Aero							
47			Base							
48		MISSILE			2.7					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Reference DE-1394-534

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17.4.1				ACTUAL WEIGHT RECORD - CTLLI SECTION			
U/O MISSILE 0000049		DRAWING NO. 25-37501-9		CHECK LIST NO. 39		REPORT NO. WBB-1130-049	
MISSILE MODEL WBB-133A		DCN B		REPORTED BY EW/OB		PAGE NO.	
CONFIGURATION		ADCN		CHECKED BY EW		DATE 11-18-63	

LONGITUDINAL REFERENCE DATUM

LATERAL REFERENCE DATUM

VERTICAL REFERENCE DATUM

WEIGHING DATA				DIMENSIONAL DATA				
REACTION	GR. WT.	TARE	CORR.	NET WT.	DIM. INCHES	DIM. INCHES	DIM. INCHES	
RF	48.75	22.30		26.45	AF	42.007	EA	84.510
RE	61.85	30.70		31.15	AR	42.023	EB	84.505
RF	110.90	64.65		46.25	BE	62.996	FC	115.490
RE	93.90	59.00		34.90	EG	62.999	FD	115.495
TOTAL	315.40	176.65		138.75	C	50.000	H	100.000
					D	60.000		

LONGITUDINAL C.G.				LATERAL C.G.				VERTICAL C.G.			
REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT
RF	26.45	42.007		RA	47.05	84.510		RB	26.50	77.478	
RE	31.15	42.023		RB	26.50	84.505		RD	31.35	77.481	
RF	46.25	62.996		RC	33.85	115.490		RA	47.05	115.900	
RE	34.90	62.999		RD	31.35	115.495		RC	33.85	115.500	
AS WGD	138.75	75.29	1,532.3	AS WGD	138.75	99.07	13,745.7	AS WGD	138.75	99.65	13,826.1

(RR) = Rear Reaction

WEIGHT AND BALANCE CHANGE RECORD

17.4.3

ASSOCIATE CONTRACTOR BOEING
 COMPONENT SECTION 39
 MODEL NO. HS-133A
 SERIAL NO. 0000049

CONTRACT NO. _____
 LOT NO. _____
 DRAWING NO. _____
 U.O. MISSILE _____

REPORT NO. WBS-1130-049
 DATE 11/18/63
 PREPARED PC/CB
 APPROVED EW

EQUIPMENT CHANGE RECORD

PART NO.	DESCRIPTION OF EQUIPMENT	WEIGHT	X AXIS		Y AXIS		Z AXIS	
			ARM	MOMENT	ARM	MOMENT	ARM	MOMENT
1	225-37501-9 Instr. Group Trainer (As Weighed)	138.75	54.29	7,532.3	99.07	13,745.7	99.65	13,826.1
2								
3								
4								
5	ADD:							
6	625-37194-315 Cable-Autometrics	3.21	74.2		115.5		102.8	
7	725-37196-315 Cable-Autometrics	1.34	50.4		106.9		111.4	
8								
9								
10								
11								
12	225-37501-9 Instr. Group Trainer (Complete)	143.30	54.70	7,838.0	99.51	14,259.7	99.83	14,305.4
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
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32								

WEIGHT AND BALANCE

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17.5

**ENGINEERING CHANGE PROPOSAL (ECP) INCORPORATION
APPLICABLE TO CTLLI SECTION S/N 0000049 AND INSTALLATION KIT**

The following ECP's have not been incorporated into "Model Specification,
Trainer-Test Group, Guided Missile, (S-133-1006-0-1)".

ECP NO. (WS-133A-BO-)	ECP TITLE	STAGE	WEIGHT CHANGE	WEIGHT CHANGE INCORPORATED IN THIS REPORT
540	Potting & Bonding Deletions for Vandenberg Air Force Base Missiles	All	-	No*
606	Revision to CTLLI Umbilical Bracket- Section 49	1	Negl.	Yes
620	Addition of Static Dissipators on 47 Section & Section 49	1	Negl.	Yes
635	PCM R/F Section Digital Data Programmer	3	Negl.	Yes
639	Prevent Interference of Linear Shape Charge with Cable Strap	3	Negl.	Yes
657	Revision of Ordnance Supports in Interstage 2-3	2	Negl.	Yes
660	Wing III G&C Section & Raceway Raceway Interface Revisions	3	Negl.	Yes

Mass properties of other applicable ECP's have been
incorporated

* ECP 540 transfers the responsibility for sealing the raceway covers from
Plant 77 to Vandenberg. However, the weight is still considered part of
the operational missile and is not included in this report.

CTLI SECTION, S/N 0000050

- 18.1. This section of the document describes the data changes created by converting a production line Minuteman missile into a CTL missile. The mass data reported herein reflect the predicted net changes to be applied to the total missile mass properties when this CTLI section and the related downstage components are installed on a missile. A supplemental report (see reference 1.1.6) will be issued at Vandenberg Air Force Base when this CTLI section is actually used on a missile. This supplemental report will reflect the actual data gathered on base during the installation and will thus supersede parts of this report. However, past experience has shown that the changes between these two reports will be slight.

The data on the following pages consist of weight and balance summaries check lists, and ECP's lists applicable to this installation. Page 175 summarizes the complete installation mass properties and consists of data from page 176 (average mass properties of downstage components), page 177 (predicted sealant changes), and page 181 (actual weight of CTLI section S/N 0000050). In addition, page 178 presents summary check lists by production section as backup data for page 176. Page 182 lists the engineering change proposals incorporated on the components used for this installation.

All data reported in this section of the document reflect the use of a linear shaped charge destruct system on the first stage engine per ECP 116.

Aerojet weights used in this report reflect the data transmitted to Boeing by Aerojet document 0162-01DR-RMPD-1, "Nominal Mass Properties and Dispersions for Minuteman CTLI/AODS" dated January 28, 1963.

Average values have been used for all Boeing items other than the CTLI section which is an actual weight.

The following drawings are incorporated in the above section:

- 10-20942, Battery Instl., Rev H 6-10-63.
- 21-52900, Missile Instl., Rev K 9-19-63.
- 25-25406, BMS 5-62 Instl., DCN J 9-13-63.
- 25-26878, Cable Assy., DCN J 9-3-63.
- 25-37060, Conduit Assy. DCN B 9-10-63, ADCN S-20 10-22-63.
- 25-37236, Instl. Kit, DCN C 6-28-63.
- 25-37237, Conduit Supt Set, DCN A 5-10-63.
- 25-37501, 39 Sect. Instl., DCN C 11-5-63.
- 29-22327, Timer Instl., DCN D 6-24-63 ADCN S-6 9-5-63.

18.1 WEIGHT & BALANCE SUMMARY TOTAL CTLI KIT INSTALLATION CTLI WAFER S/N 0000050						REPORT NO. _____ DATE _____				
LINE	SEC	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x 10 ⁻³	
						LONG.*	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			146.97	54.8	99.7	100.1	.004	.002
5			Silo							
6			Aero							
7	42	O&C Section			5.56	67.9	111.7	114.7	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.65	85.9	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3 (Fwd)			- 1.32	56.3	109.8	117.7	0	0
15			Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	- 1.32		56.3	109.8	117.7		
22	45	Interstage 2-3 (Aft)			18.64	64.7	111.8	120.2	0	.001
23			Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2 (Fwd)			- .98	58.2	113.6	123.8	0	0
30			Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2 (Aft)			25.26	74.0	114.8	125.2	0	.002
38			Silo							
39			Aero							
40	48	1st Stage Engine			26.70	117.2	117.7	130.1	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			7.78	74.5	118.1	129.6	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			271.26					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Boiling Section Stations (See Missile Station Diagram)

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18.2 WEIGHT & BALANCE SUMMARY CTLI (AVERAGE WEIGHT COMPONENTS)						REPORT NO. _____ DATE _____					
LINE	S	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10-3		
						LONG.	LAT.	VERT.	ROLL	PITCH	
1	41	RV Spacer									
2			Silo								
3			Aero								
4	39	CTLI Section			3.42	56.9	108.4	112.4	0	0	
5			Silo								
6			Aero								
7	42	G&C Section			5.16	68.1	111.8	114.8	0	0	
8			Silo								
9			Aero								
10	44	3rd Stage Engine			16.45	86.0	108.5	117.0	0	.002	
11			Silo								
12			Aero								
13			Base								
14	45	Interstage 2-3			- 1.52	55.9	109.9	117.6	0	0	
15		(Fwd)	Silo								
16			Aero								
17			Base								
18		Jettisoned Portion	Silo								
19			Aero								
20			Base								
21			Jett	- 1.52		55.9	109.9	117.6			
22	45	Interstage 2-3			18.44	64.8	111.8	120.2	0	.001	
23		(Aft)	Silo								
24			Aero								
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009	
26			Silo								
27			Aero								
28			Base								
29	47	Interstage 1-2			- .98	58.2	113.6	123.8	0	0	
30		(Fwd)	Silo								
31			Aero								
32			Base								
33		Jettisoned Portion	Silo								
34			Aero								
35			Base								
36			Jett	- .98		58.2	113.6	123.8			
37	47	Interstage 1-2			24.76	73.6	115.1	125.6	0	.002	
38		(Aft)	Silo								
39			Aero								
40	48	1st Stage Engine			25.90	115.8	117.7	130.2	0	.023	
41			Silo								
42			Aero								
43			Base								
44	49	Skirt			7.58	73.8	118.1	129.5	0	0	
45			Silo								
46			Aero								
47			Base								
48		MISSILE			125.21						
49			Silo								
50			Aero								
51			Base								
52			Jett								

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18.2 RWS 5-62 CHARGES INSTALLED AT VANDEMBERG AIR FORCE BASE*						REPORT NO. _____ DATE _____				
LINE	SEC.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10-3	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			.2	54.5	111.5	111.5		
5			Silo							
6			Aero							
7	42	O&C Section			.4	65.4	110.5	113.5		
8			Silo							
9			Aero							
10	44	3rd Stage Engine			.2	80.9	109.3	116.2		
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			.2	53.6	110.8	116.7		
15		(Fwd)	Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	.2		53.6	110.8	116.7		
22	45	Interstage 2-3			.2	53.6	110.8	116.7		
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			0	-	-	-		
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			0	-	-	-		
30		(Fwd)	Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett							
37	47	Interstage 1-2			.5	94.7	102.0	103.4		
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			.8	161.3	116.2	128.0		
41			Silo							
42			Aero							
43			Base							
44	49	Start			.2	101.3	119.2	133.9		
45			Silo							
46			Aero							
47			Base							
48		MISSILE			2.7					
49			Silo							
50			Aero							
51			Base							
52			Jett							

2-5550-0-58 * Reference D2-13954-534

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18.4.1

U/O MISSILE 0000050
MISSILE MODEL WS-133A
CONFIGURATION

DRAWING NO. 25-37501-9
DCN
ADCN

CHECK LIST NO. 39
REPORTED BY CB
CHECKED BY BW

REPORT NO. WTS-1132-050
PAGE NO.
DATE 12/2/63

LONGITUDINAL REFERENCE DATUM

LATERAL REFERENCE DATUM

VERTICAL REFERENCE DATUM

WEIGHING DATA

REACTION	GR. WT.	TARE	CORR.	NET WT.
RF	31.30	9.00		22.30
RH	78.70	43.50		35.20
RE	129.35	78.45		50.90
RG	76.00	45.60		30.40
TOTAL	315.35	176.55		138.80

DIMENSIONAL DATA

DIM.	INCHES	DIM.	INCHES	DIM.	INCHES
AF	42.007	EA	84.510	GB	77.478
AH	42.023	EB	84.505	GD	77.481
BE	62.996	FC	115.490	JA	115.500
BG	62.999	FD	115.495	JC	115.500
C	50.000	H	100.000	M	100.000
D	60.000				

LONGITUDINAL C.G.

REACTION	NET WT.	ARM	MOMENT
RF	22.30	42.007	
RH	35.20	42.023	
RE	50.90	62.996	
RG	30.40	62.999	
AS WTD	138.80	54.31	7,537.6

LATERAL C.G.

REACTION	NET WT.	ARM	MOMENT
RA	35.25	84.510	
RB	38.45	84.505	
RC	45.50	115.490	
RD	19.60	115.495	
AS WTD	138.80	99.04	13,746.7

VERTICAL C.G.

REACTION	NET WT.	ARM	MOMENT
RB	38.45	77.478	
RD	19.60	77.481	
RA	35.25	115.500	
RC	45.50	115.500	
AS WTD	138.80	99.60	13,824.3

(RR) = Rear Reaction

SERIAL NUMBER: 0000050

CHECK LIST NO. 39		MODEL MS-133A		FINAL ASSEMBLY DRAWING NO. 25-35701-9		RECORD OF CHECKING (DATE)						
DATE		SECTION 39		MISSILE NO.		COMPONENT						
DATE		MISSILE COMPONENT		COMPONENT PART NO.		COMPONENT						
ITEM NUMBER	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	BASIC WEIGHT	AS WEIGHED	REMOTE SITE SHIPMENT	AS RECEIVED	REMOTE SITE	LAUNCH
39	Instrumentation Group, Trainer-Nest	25-37501-9					-	-				
39a	CUJI Structure Assembly	25-25403-11					-	-				
	Support Structure	25-29094-45					X	X				
	Primary Structure	25-29093-15					X	X				
	Insulation & External Markings	25-29095-3					X	X				
	Antenna & Spacer	25-29096-3					X	X				
	Plate - Identification	21-51600-329					X	X				
39b	Cable & Equipment Installation	25-25404-15					X	-				
	Battery, Squib	10-20942-4					X	X				
	Battery, Squib	10-20942-2					X	X				
	Cable Bat SR-35B	55018-106					-	-				
	Cable	AM37192-315					X	X				
	Cable	AM37194-315					X	0				
	Cable	AM37196-315					X	0				

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NO. DR-13943-2

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18.4.3 WEIGHT AND BALANCE CHANGE RECORD									
ASSOCIATE CONTRACTOR BOEING			CONTRACT NO.		REPORT NO.		WBS-1132-050		
COMPONENT SECTION 39			LOT NO.		DATE		11/2/63		
MODEL NO. WS-133A			DRAWING NO.		PREPARED		CB		
SERIAL NO. 000050			U.O. MISSILE		APPROVED		GO		
25-37501-9									

EQUIPMENT CHANGE RECORD			WEIGHT AND BALANCE						
LINE	PART NO.	DESCRIPTION OF EQUIPMENT	WEIGHT	X AXIS		Y AXIS		Z AXIS	
				ARM	MOMENT	ARM	MOMENT	ARM	MOMENT
1	225-37501-9	Instr. Group Trainer (As Weighed)	138.80	54.31	7,537.6	99.04	13,746.7	99.60	13,824.3
2									
3									
4									
5		AID:							
6	AN37194-315	Cable-Autometrics	3.22	74.2		115.5		102.8	
7	AN37196-315	Cable-Autometrics	1.33	50.4		106.9		111.4	
8									
9									
10									
11	25-37501-9	Instr. Group Trainer (Complete)	143.35	54.72	7,843.6	99.48	14,260.8	99.78	14,303.5
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									

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18.5

ENGINEERING CHANGE PROPOSAL (ECP) INCORPORATION **APPLICABLE TO CTLI SECTION S/N 0000050 AND INSTALLATION KIT**

The following ECP's have not been incorporated into "Model Specification, Trainer-Test Group, Guided Missile, (S-133-1006-0-1)".

ECP NO. (WS-133A-BO-)	ECP TITLE	STAGE	WEIGHT CHANGE	WEIGHT CHANGE INCORPORATED IN THIS REPORT
540	Potting & Bonding Deletions for Vandenberg Air Force Base Missiles	All	-	No*
606	Revision to CTLI Umbilical Bracket-Section 49	1	Negl.	Yes
620	Addition of Static Dissipators on 47 Section & Section 49	1	Negl.	Yes
635	PCM R/F Section Digital Data Programmer	3	Negl.	Yes
639	Prevent Interference of Linear Shape Charge with Cable Strap	3	Negl.	Yes
657	Revision of Ordnance Supports in Interstage 2-3	2	Negl.	Yes
660	Wing III G&C Section & Raceway Interface Revisions	3	Negl.	Yes

Mass properties of other applicable ECP's have been incorporated

* ECP 540 transfers the responsibility for sealing the raceway covers from Plant 77 to Vandenberg. However, the weight is still considered part of the operational missile and is not included in this report.

CTLI SECTION, S/N 0000051

19.1 This section of the document describes the data changes created by converting a production line Minuteman missile into a CTLI missile. The mass data reported herein reflect the predicted net changes to be applied to the total missile mass properties when this CTLI section and the related downstage components are installed on a missile. A supplemental report (see reference 1.1.6) will be issued at Vandenberg Air Force Base when this CTLI section is actually used on a missile. This supplemental report will reflect the actual data gathered on base during the installation and will thus supersede parts of this report. However, past experience has shown that the changes between these two reports will be slight.

The data on the following pages consists of weight and balance summaries check lists, and ECP's lists applicable to this installation. Page 184 summarizes the complete installation mass properties and consists of data from page 185 (average mass properties of downstage components), page 186 (predicted sealant changes), and page 190 (actual weight of CTLI section S/N 0000051). In addition, page 187 presents summary check lists by production section as backup data for page 185. Page 191 lists the engineering change proposals incorporated on the components used for this installation.

All data reported in this section of the document reflect the use of a linear shaped charge destruct system on the first stage engine per ECP 116.

Aerojet weights used in this report reflect the data transmitted to Boeing by Aerojet document 0162-GLDR-NMPD-1, "Nominal Mass Properties and Dispersions for Minuteman CTLI/AODE" dated January 28, 1963.

Average values have been used for all Boeing items other than the CTLI section which is an actual weight.

The following drawings are incorporated in the above section:

10-20942, Battery Instl., Rev. H 6-10-63.
21-52900, Missile Instl., Rev. K 9-19-63.
25-25406, FMS 5-62 Instl., DCN J 9-13-63.
25-26878, Cable Assy., DCN J 9-13-63.
25-37060, Conduit Assy., DCN B 9-10-63, ADCN S-20 10-22-63.
25-37236, Instl. Kit DCN C 6-28-63.
25-37237, Conduit Supt. Set, DCN A 5-10-63.
25-37501, 39 Sect. Instl., DCN C 11-5-63.
29-22327, Timer Instl., DCN D 6-24-63, ADCN S-6 9-5-63.

19.2 WEIGHT & BALANCE SUMMARY TOTAL CTLI KIT INSTALLATION CTLI WAFER S/N 0000051						REPORT NO. _____ DATE _____				
LINE	S/N	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10 ⁻³	
						LONG.*	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			146.61	54.7	99.7	100.1	.004	.002
5			Silo							
6			Aero							
7	42	O&C Section			5.56	67.9	111.7	114.7	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.65	85.9	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3			- 1.32	56.3	109.8	117.7	0	0
15		(Fwd)	Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned	Aero							
20		Portion	Base							
21			Jett	- 1.32		56.3	109.8	117.7		
22	45	Interstage 2-3			18.64	64.7	111.8	120.2	0	.001
23		(Aft)	Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2			- .98	58.2	113.6	123.8	0	0
30		(Fwd)	Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned	Aero							
35		Portion	Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2			25.26	74.0	114.8	125.2	0	.002
38		(Aft)	Silo							
39			Aero							
40	48	1st Stage Engine			26.70	117.2	117.7	130.1	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			7.78	74.5	118.1	129.6	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			270.90					
49			Silo							
50			Aero							
51			Base							
52			Jett							

* Boeing Section Stations (See Missile Station Diagram)

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19.2 WEIGHT & BALANCE SUMMARY CTLI (AVERAGE WEIGHT COMPONENTS)						REPORT NO. _____ DATE _____				
LINE	ID	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10-3	
						LONG.	LAT.	VERT.	ROLL	PITCH
1	41	RV Spacer								
2			Silo							
3			Aero							
4	39	CTLI Section			3.42	56.9	108.4	112.4	0	0
5			Silo							
6			Aero							
7	42	O&C Section			5.16	68.1	111.8	114.8	0	0
8			Silo							
9			Aero							
10	44	3rd Stage Engine			16.45	86.0	108.5	117.0	0	.002
11			Silo							
12			Aero							
13			Base							
14	45	Interstage 2-3 (Fwd)			- 1.52	55.9	109.9	117.6	0	0
15			Silo							
16			Aero							
17			Base							
18			Silo							
19		Jettisoned Portion	Aero							
20			Base							
21			Jett	- 1.52		55.9	109.9	117.6		
22	45	Interstage 2-3 (Aft)			18.44	64.8	111.3	120.2	0	.001
23			Silo							
24			Aero							
25	46	2nd Stage Engine			26.00	99.9	112.7	121.8	0	.009
26			Silo							
27			Aero							
28			Base							
29	47	Interstage 1-2 (Fwd)			- .98	58.2	113.6	123.8	0	0
30			Silo							
31			Aero							
32			Base							
33			Silo							
34		Jettisoned Portion	Aero							
35			Base							
36			Jett	- .98		58.2	113.6	123.8		
37	47	Interstage 1-2 (Aft)			24.76	73.6	115.1	125.6	0	.002
38			Silo							
39			Aero							
40	48	1st Stage Engine			25.90	115.8	117.7	130.2	0	.023
41			Silo							
42			Aero							
43			Base							
44	49	Skirt			7.58	73.8	118.1	129.5	0	0
45			Silo							
46			Aero							
47			Base							
48		MISSILE			125.21					
49			Silo							
50			Aero							
51			Base							
52			Jett							

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19.2 BMS 5-62 CHARGES INSTALLED AT VANDENBERG AIR FORCE BASE*						REPORT NO. _____ DATE _____					
LINE	SEC.	DESCRIPTION	DATA	EXPENDED WEIGHT (LB)	TOTAL WEIGHT (LB)	CENTER OF GRAVITY			INERTIA SLUG FT ² x10 ⁻³		
						LONG.	LAT.	VERT.	ROLL	PITCH	
1	41	RV Spacer									
2			Silo								
3			Aero								
4	39	CTLI Section			.2	54.5	111.5	111.5			
5			Silo								
6			Aero								
7	42	O&C Section			.4	65.4	110.5	113.5			
8			Silo								
9			Aero								
10	44	3rd Stage Engine			.2	80.2	109.3	116.2			
11			Silo								
12			Aero								
13			Base								
14	45	Interstage 2-3 (Fwd)			.2	53.6	110.8	116.7			
15			Silo								
16			Aero								
17			Base								
18			Silo								
19		Jettisoned	{								
20		Portion		Aero							
21				Base							
22	45	Interstage 2-3 (Aft)	Jett	.2		53.6	110.8	116.7			
23			Silo		.2	53.6	110.8	116.7			
24			Aero								
25	46	2nd Stage Engine			0	-	-	-			
26			Silo								
27			Aero								
28			Base								
29	47	Interstage 1-2 (Fwd)			0	-	-	-			
30			Silo								
31			Aero								
32			Base								
33			Silo								
34		Jettisoned	{								
35		Portion		Aero							
36				Base							
37	47	Interstage 1-2 (Aft)	Jett		.5	94.7	102.0	103.4			
38			Silo								
39			Aero								
40	48	1st Stage Engine			.8	161.3	116.2	128.0			
41			Silo								
42			Aero								
43			Base								
44	49	Skirt			.2	101.3	119.2	133.9			
45			Silo								
46			Aero								
47			Base								
48		MISSILE			2.7						
49			Silo								
50			Aero								
51			Base								
52			Jett								

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19.4.1				ACTUAL WEIGHT RECORD - CTLI SECTION			
U/O MISSILE 0000051		DRAWING NO. 25-37501-9		CHECK LIST NO. 39		REPORT NO. WTS-1147-051	
MISSILE MODEL WS-133A		DCN		REPORTED BY OB/GJ		PAGE NO.	
CONFIGURATION		ADCN		CHECKED BY EW		DATE 12/10/63	

LONGITUDINAL REFERENCE DATUM

LATERAL REFERENCE DATUM

VERTICAL REFERENCE DATUM

WEIGHING DATA				DIMENSIONAL DATA				
REACTION	GR. WT.	TARE	CORR.	NET WT.	DIM. INCHES	DIM. INCHES	DIM. INCHES	
RF	43.65	18.60		25.05	AF	42.007	EA	84.510
RH	66.25	33.60		32.65	AH	42.023	EB	84.505
RE	116.85	68.70		48.15	BE	62.996	FC	115.490
RG	88.20	55.60		32.60	BG	62.999	FD	115.495
TOTAL	314.95	176.50		138.45	C	50.000	H	100.000
					D	60.000	M	100.000

LONGITUDINAL C.G.				LATERAL C.G.				VERTICAL C.G.			
REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT	REACTION	NET WT.	ARM	MOMENT
RF	25.05	42.007		RA	47.65	84.510		RB	25.95	77.478	
RH	32.65	42.023		RB	25.95	84.505		RD	31.85	77.480	
RE	48.15	62.996		RC	33.00	115.490		RA	47.65	115.500	
RG	32.60	62.999		RD	31.85	115.495		RC	33.00	115.500	
AS WGD	138.45	74.25	7,511.4	AS WGD	138.45	99.02	13,709.5	AS WGD	138.45	99.63	13,793.4

(RR) = Rear Reaction

NO. 25-37501-9

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SERIAL NUMBER: 0000051

CHECK LIST NO. 39		19.4.2 MISSILE WEIGHING CHECK LIST		RECORD OF CHECKING (DATE)									
DATE		MODEL MB-133A		FINAL ASSEMBLY DRAWING NO. 25-35701-9		<table border="1"> <tr> <td>Mo</td> <td>12</td> </tr> <tr> <td>Day</td> <td>10</td> </tr> <tr> <td>Yr</td> <td>63</td> </tr> </table>		Mo	12	Day	10	Yr	63
Mo	12												
Day	10												
Yr	63												
SECTION 39		MISSILE NO.		COMPONENT									
MISSILE COMPONENT		COMPONENT PART NO.		<table border="1"> <tr> <td>BASIC WEIGHT</td> <td>AS WEIGHED</td> <td>REMOTE SITE SHIPMENT</td> <td>AS RECEIVED</td> <td>AS WEIGHED</td> <td>REMOTE SITE</td> </tr> </table>				BASIC WEIGHT	AS WEIGHED	REMOTE SITE SHIPMENT	AS RECEIVED	AS WEIGHED	REMOTE SITE
BASIC WEIGHT	AS WEIGHED	REMOTE SITE SHIPMENT	AS RECEIVED	AS WEIGHED	REMOTE SITE								
ITEM NUMBER	DESCRIPTION	PART NO.	WEIGHT	X ARM	Y ARM	Z ARM	LAUNCH						
39	Instrumentation Group, Trainer-Test	25-37501-9											
39a	CWII Structure Assembly	25-25403-11											
	Support Structure	25-29094-45											
	Primary Structure	25-29093-15											
	Insulation & External Markings	25-29095-3											
	Antenna & Spacer	25-29096-3											
	Plate - Identification	21-51600-329											
39b	Cable & Equipment Installation	25-25404-15											
	Battery, Squib	10-20942-4											
	Battery, Squib	10-20942-2											
	Cable Set SR-35B	55018-106											
	Cable	AF37192-315											
	Cable	AF37194-315											
	Cable	AF37196-315											

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19.4.3 WEIGHT AND BALANCE CHANGE RECORD											
ASSOCIATE CONTRACTOR			CONTRACT NO.			REPORT NO.			WBS-1147-051		
COMPONENT			LOT NO.			DATE			12/10/63		
MODEL NO.			DRAWING NO.			PREPARED			CB		
SERIAL NO.			U.O. MISSILE			APPROVED			GO		
U.O. MISSILE			0000051								
EQUIPMENT CHANGE RECORD			WEIGHT AND BALANCE								
LINE	PART NO.	DESCRIPTION OF EQUIPMENT	WEIGHT	X AXIS		Y AXIS		Z AXIS			
				ARM	MOMENT	ARM	MOMENT	ARM	MOMENT		
1	225-37501-9	Instr. Group Trainer (As Weighed)	138.45	54.25	7,511.4	99.02	13,709.5	99.63	13,793.4		
2											
3											
4											
5		ADD:									
6	6AN37194-315	Cable-Autometrics	3.19	74.2		115.5		102.8			
7	7AN37196-315	Cable-Autometrics	1.35	50.4		106.9		111.4			
8											
9											
10											
11	1125-37501-9	Instr. Group Trainer (Complete)	142.99	54.66	7,816.1	99.46	14,222.3	99.81	14,271.7		
12											
13											
14											
15											
16											
17											
18											
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21											
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32											

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19.5

ENGINEERING CHANGE PROPOSAL (ECP) INCORPORATION APPLICABLE TO CTLI SECTION S/N 0000051 AND INSTALLATION KIT

The following ECP's have not been incorporated into "Model Specification, Trainer-Test Group, Guided Missile, (S-133-1006-0-1)".

ECP NO. (WS-133A-BO-)	ECP TITLE	STAGE	WEIGHT CHANGE	WEIGHT CHANGE INCORPORATED IN THIS REPORT
540	Potting & Bonding Deletions for Vandenberg Air Force Base Missiles	All	-	No*
606	Revision to CTLI Umbilical Bracket Section 49	1	Negl.	Yes
620	Addition of Static Dissipators on 47 Section & Section 49	1	Negl.	Yes
635	PCM R/F Section Digital Data Programmer	3	Negl.	Yes
639	Prevent Interference of Linear Shape Charge with Cable Strap	3	Negl.	Yes
657	Revision of Ordnance Supports in Interstage 2-3	2	Negl.	Yes
660	Wing III G&C Section & Raceway Interface Revisions	3	Negl.	Yes

Mass properties of other applicable ECP's have been incorporated

* ECP 540 transfers the responsibility for sealing the raceway covers from Plant 77 to Vandenberg. However, the weight is still considered part of the operational missile and is not included in this report.

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END CHANGE PAGES